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Water Lilies.

THERE are no plants perhaps which can be cultivated in the United States with less trouble and with more pleasure than Water Lilies; and certainly no plants create more admiration when they are seen in perfection.

The natural conditions here are peculiarly favorable to them. Shallow ponds with muddy bottoms in which the burning rays of our summer sun raises and maintains the temperature of the water to almost tropical heat, are common in many parts of the country. Our native Water Lilies flourish in such ponds, which may be made the home, too, of numerous hardy exotic species, and in which gorgeous tropical varieties may be set to flower during the summer months. Tropical Water Lilies are grown in heated tanks, too, under glass in some gardens; and they are often grown in out-of-door tanks which can be heated by pipes from the green-house boiler, if the tenderest species or very early flowers are wanted. Some of the finest varieties can be as successfully grown in a tub of water sunk in a city yard as in the most elaborately constructed and heated tank; and tubs of these plants plunged in the basins of fountains make the most appropriate and by far the most beautiful ornaments which can be used in such situations. Water Lilies are plants for the poor as well as for the rich; and their decorative capabilities are almost limitless. The number of species with handsome flowers is already large, and as several species hybridize freely, it is probable that we cannot form an idea even yet of the beauty which intelligent cultivation will develop in these plants.

The true Water Lilies (*Nymphæa*) may be divided into two classes: those which expand their flowers in the morning, closing them in the afternoon, and those which bloom only at night. Among those of the first class, none is more lovely than the common fragrant White Lily of the Eastern States (*N. odorata*). Its pure white, deliciously fragrant flowers are not surpassed in delicacy and in real beauty by any of the more highly colored and showier flowers of the tropics. This plant is very easily established in muddy, shallow ponds by simply pushing bits of the root down into the mud, and it is one of the best Water Lilies to grow in a tub, when if planted in very rich soil it will produce an abundance of flowers all summer long. In the autumn the water should be turned off and the tub stored in a cellar or pit out of the reach of hard freezing. There is a pink flowered variety of the common Water Lily found in a pond in the town of Sandwich in Massachusetts. The flowers are much esteemed and sell for high prices, although really far less beautiful than the white ones. It is as easily cultivated as the typical plant; and when transplanted into other ponds it still produces its pink flowers. *Nymphæa tuberosa*, a native of the region from western New York to the Mississippi, where it inhabits shallow ponds and sluggish streams, is a handsome species with tuber-bearing roots, large bold leaves and pure white flowers, sometimes ten inches across. They are quite devoid of odor, however, and although this is a very hardy, free-growing plant, soon spreading over large areas, it has not the charm and will never supersede its humbler eastern rival. The yellow flowered Water Lily of Florida is hardy too at the north, and will flower abundantly if a warm situation and deep soil are selected for it. It is not a very showy plant, however, and the interest which it excites lies in the pale yellow color of the flowers (an unusual color in Water Lilies), rather than in their beauty, and in its history. For years it was only known by the picture joined to one of the plates in Audubon's "*Birds of America*," while its existence was doubted and denied. This sketch was made by the lamented naturalist, Leitner, one of the first victims of the Seminole war, and it is only within recent years that it was made known to botanists through the exertions of our associate, Mrs. Treat, by whom and by Mr. Curtiss it was introduced into cultivation. An interesting article from Mrs. Treat's pen, in which the finding of *N. flava* is described, was published with illustrations in Harper's Magazine, volume 55, page 365.

The European Water Lily (*N. alba*) is hardy in the Northern States, as are its varieties *N. alba candidissima* and *rosea*. The first of these varieties is the most beautiful of the European Water Lilies. It has large, pure white flowers with more waxy petals than our common Water Lily, and when grown under favorable conditions of soil and temperature it produces its flowers during a longer period. They are quite odorless, however, and these plants will probably never be cultivated here except by persons who desire to form a general collection. More attractive is the dwarf Water Lily of China and Siberia (*N. pygmæa*)—a hardy plant with miniature fragrant white flowers which remain open only during the afternoon.

The number of tropical Water Lilies is large. A few of them can be grown in the Northern States in artificially heated tanks only, but some of the finest flower freely in shallow ponds if they are started in heat and then transplanted into large boxes or tubs of rich soil, which should be plunged, when the water has become warmed by the sun, without disturbing the roots. Many of these too make excellent tub plants, producing flowers profusely through August and September.

The Victoria Regia, first cousin of the *Nymphæas*, the great Water Lily of the Amazon, although generally grown under glass outside the tropics, will, if treated as an annual, and started in early spring in heat, flower at the north in an open heated tank, and produce its enormous leaves and great white flowers in luxuriant profusion. In the Southern States it needs no artificial heat to develop its beauties; and we may expect to see, when it is better known, the sluggish streams of Florida and Louisiana become splendid by the presence of this, the noblest of all aquatic plants. Some idea of the beauty which may be given to southern ponds and streams through the cultivation of Water Lilies can be learned from our illustration (see page 245), taken from a photograph of one of the small lakes in the famous botanical garden at Buitenzorg, in the mountains of Java, upon which the Victoria Regia

and several of the larger tropical Nymphæas are floating, while in the foreground there is a great mass of the Indian Lotus.

Among tender Water Lilies which flower by day by far the best known in our gardens is the blue-flowered species from the Cape of Good Hope, *N. scutifolia*. It is a handsome plant, with bright blue flowers, and very easy to cultivate. In gardens it is sometimes confounded with *N. cærulea* or *N. cyanea*, synonyms of the tropical African *N. stellata*, which the ancient Egyptians prized so highly and so often engraved on their monuments. Another blue-flowered Water Lily, which is probably only a variety of this last, is known in gardens as *N. Zanzibarensis*; it has larger and darker flowers, and is one of the finest and very best of all the Water Lilies in cultivation. Varieties are known with darker and with lighter flowers.

Among tender Water Lilies which flower at night are *N. Lotus*, an old world tropical species, with large, pure white or sometimes red flowers (*N. rubra*). It is the Lotus sacred to Isis, and famous among the Egyptians, who, in spite of its sacred character, made bread from its seeds and dried roots. It is one of the first of the tropical species cultivated in Europe and one of the handsomest. It is a parent of many hybrids, of which the most showy and the best known is *N. Devoniensis*, one of the triumphs of English horticulture; and hardly surpassed in the brilliant color of its large flowers by those of any other Water Lily. *N. rubra* and *N. dentata*, now considered forms of *N. Lotus*, although quite distinct from a garden point of view, are exceedingly attractive plants, and this is true of the Jamaica Water Lily (*N. ampla*), with its yellow or yellow-white flowers. There are many more of the true Water Lilies in the tropics, but it is unnecessary to enumerate them here.

But the Nymphæas are not the only aquatic plants with attractive foliage and handsome flowers, and no collection of these plants will be complete without their near relatives, the Nelumbiums, the Sacred or Water Beans, with their broad, circular leaves, borne above the water on tall, stout petioles, and great, fragrant flowers, standing high above the leaves. There are two species, the yellow Nelumbium (*N. luteum*), a native of our Western and Southern States, and now naturalized in a few places in the East, notably in the Connecticut River below Hartford, and in the Delaware below Philadelphia, and in New Jersey. The American Nelumbium has handsome yellow flowers, sometimes ten inches across, and farinaceous tubers, which, like the seeds, are edible, and once furnished to the North American Indians an important article of food. The second species, *N. speciosum*, is a native of India. From time immemorial it has been looked upon as the emblem of fertility, and has been cultivated by the Egyptians and all the people of the East. It is the Egyptian Bean of Pythagoras and the Sacred Lotus of India. The lovely, delicate white, sweet-scented flowers, tipped with pink, which in one variety are pure white, stand high above the pale green leaves, and are not surpassed in beauty by those of any other plant. It is easily cultivated, and the fact that it has already become thoroughly naturalized in one pond at least in New Jersey excites the hope that this fine plant will some day be as much at home in the waters of the Middle and Southern States as it is in those of China and Japan. At the North it should receive the treatment necessary to insure the blooming of the hardier of the tender Nymphæas, although its more vigorous growth and rambling habit demand a separate compartment when it is grown in a tank with other plants, which otherwise it would soon exterminate.

The list of aquatic plants with handsome flowers and foliage is not by any means confined to the Nymphæas and the Nelumbiums, but enough has been said, perhaps, to draw attention to the pleasure which may be derived from the cultivation of this class of plants which are within the reach of any one who can afford a tub of water and a piece of sunny ground large enough to hold it.

The Artistic Aspect of Trees. III.—Color.

THE forms and the textures of trees having been briefly noted as they appear from the artistic point of view, it is time to say a word about their colors.

The color of foliage is more or less affected by its texture. Given leaves of a certain tint of green, the tree will seem darker if its head is massive and dense than if it is feathery and infiltrated with light. It is, of course, the general color effect, and not the color of a leaf separately considered, which concerns the student of nature's beauties and of the planter's tasks.

Among the varieties which nature creates when clothing her trees in her usual livery of green, an artist would distinguish varieties of tint and varieties of tone or "value." The green of foliage may be of a bluish, or a yellowish, or a grayish tint, and, keeping this tint, it may vary from a very pale to a very dark tone. Again, the effect of a tree may be compounded of the different colors shown by the different sides of its leaves—may be a mottled and not a simple tone; and it is always affected by the surface-character of the leaves, a smooth and shining tissue giving a tone quite unlike that produced by a dull or woolly tissue, even though upon examination the same shade of coloring matter be discovered. And then, when her greens are exhausted, nature falls back upon other colors and gives us such an eccentric thing as, for instance, the Purple Beech.

If, as we have said, it is impossible to learn how to appreciate and manage the forms of trees from written rules and counsels, it is still more impossible thus to learn with regard to their colors. Among artistic powers a feeling for color is the one which depends most upon an innate gift; and, though like all the others, it may be cultivated with success, a process of practical self-culture—of constant observation and comparison and appraisement—is the only one that can much avail. The trouble with most of us is not that we could not see the difference between harmony and disharmony in colors if we tried, but that we do not try. We do not really look at what we see. We accept what nature—and too often what the planter—sets before us, and neither reflect whether it is good or bad, nor stop to analyze the reason even when we are quite sure which it is. Although, however, reliance must chiefly be placed upon the cultivation of eye and taste, whether the aim be appreciation merely or action too, a few general principles may be explained in words.

As with qualities of texture, so with qualities of color, restfulness and dignity are more often desirable, and are desirable in larger quantities, than restlessness and fragile grace; and it may be broadly said that dark colors are more dignified than pale ones, and that the most restless of all are those which are mottled instead of simple. The unquiet look of a Silver Maple, for instance, as compared with the restful look of a Sugar Maple, depends as much upon the varying color of the under and upper surfaces of its leaves, as upon their more lace-like shapes and the more straggling form of the tree itself. The former is the better tree of the two to supply a lively accent in some situation where this is desirable; the latter is the better to use in large masses, or to place as a single specimen where a strong yet quiet note would be the right one.

A second point which may be indicated is that it is safer to place two tones of the same tint together—as a dark and a lighter bluish-green—than to associate two different tints—as a bluish with a yellowish green. Yet the most effective combinations, when they are rightly made, are those which owe their charm to contrast rather than to concord. Still another point is that grayish greens are those upon which dependence may best be placed for harmonizing strong notes of other kinds—approaching most nearly to those neutral tones upon which

painters on canvas put such reliance. We may sometimes see the fact illustrated towards evening, when a plantation which is inharmonious in color under bright light becomes harmonious simply by the fading out of one or two of its tints into grayish twilight hues.

Again it may be remarked that when a tree is not green at all — when it is purple, for instance, like the well-known variety of Beech, or red like some of the Japanese Maples, or blue like the Colorado Spruce, or bright yellow like many cultivated varieties of shrubs— it should be used with peculiar care and a discretion amounting to the most rigid parsimony. It is like the red cloak which the landscape painter is so fond of using —invaluable, sometimes, if set in exactly the right place, but by no means always desirable, and always ruinous if wrongly placed or over-emphasized. Finally, all objects which come in visual contact with our trees must be considered as affecting their own colors. A tree which would look well against a background of dark rock might not look as well lifted against a background of sky; and one which would harmonize with a brown or a white house might not harmonize with a red brick house. The sheen and color of water, too, and its reflecting powers, demand that its borders be very carefully treated. A bright tree which gives a welcome accent in itself might give a distinctly over-emphatic accent if doubled by reflection in a sheet of water; and, in general, moderately dark, or grayish, or whitish trees best sustain this reflection. We are right, for once, in our fashion of placing Willows near water; not only their feathery texture but their tender and often neutral colors fit them well for such situations. If we imagine a large White Willow changed to a vivid yellow-green, like that of the Box Elder, we feel at once that its fitness for the neighborhood of water would be seriously impaired. Of course in the autumn the case is different; then all tones are changed to more vivid ones; brightness is the characteristic quality of the landscape, and the brighter the reflected note, the better it often appears.

It should also be remembered that the color of its foliage is not the only thing which determines the color of a tree. Its trunk and branches are often very apparent and are sometimes very striking in color. The foliage of the Canoe Birch would not, of itself, make it a very conspicuous tree, but its dark glossy leaves with their paler under sides, in contrast with its pure white bark, make it so very striking that it is difficult indeed to place it harmoniously. The lighter hue of the foliage of the Silver Birch is also accentuated by the whitish-gray of its bark, as the mottled appearance given the Sycamore by the shape and disposition of its leaves is accentuated by the mottled color of its splitting and peeling bark. There is no end to the varieties of combination thus presented for the planter's use, and while each one renders his task more complicated and difficult, each affords him a new chance for some specially beautiful effect if he can learn how to use it rightly.

Among the Pines in June.

THE Pines in June are fairly ablaze with color. Gorgeous masses of broad-leaved Laurel forming dense thickets, are scattered here and there, and the intervening spaces abound with the showy Dogwood (*Cornus florida*), and wild roses fill the air with a delicate perfume.

The Japan Honeysuckle (*Lonicera Japonica*), has found its way among our native shrubs and threatens to strangle them. It extends over quite an area on either side of a small stream. I have watched its progress with much interest for ten years past, and to-day it is one mass of bloom, clambering over poison sumach and a great many other shrubs, and even large trees like the Sour Gum and Swamp Maple. Not one of our native vines can compete with it. Even the vigorous Ampelopsis is hidden beneath this wealth of foliage and flower.

The Cinnamon-fern (*Osmunda cinnamomea*) grows here in great luxuriance. The sterile fronds are above my head, standing out in graceful curves, perfect in outline, with not a broken or straggling frond. Such a magnificent bunch growing near our door would well repay the time and labor bestowed upon it. Our two other Osmundas are also here, as well as the two Woodwardias, and the sweet-scented Dicksonia, and several Aspidiums. The rare very local *Schizæa pusilla*, belongs exclusively to our Pine-barrens. I find it a few miles from home surrounded by many other choice plants—*Pogonia divaricata* and *P. verticillata* being among the number.

Our ponds and streams are now beautiful with white Pond Lilies, and the little Lake-flower (*Limnanthemum lacunosum*), is scattered among them. It has small, shining, heart-shaped leaves, often variegated with white and yellow, and clusters of white wheel-shaped flowers are intermingled with the pretty leaves.

The Water-shield (*Brasenia peltata*) is also in the same pond, and its oval, shield-shaped leaves float among the Lilies and Lake-flowers. The flowers of the Water-shield are of a dull-purple color, and its stems and buds are coated with a thick, transparent mucilage.

The inflated Bladderwort (*Utricularia inflata*) is mixed with the other plants, floating on the water, and when free from them it goes where the wind wills it, with its cluster of bright yellow flowers standing above the water and carrying within its curiously formed bladders hosts of tiny larvæ and animalcules. The purple Bladderwort is here too with violet-purple flowers. The bladders on this are very abundant and quite unlike those of our other species. Under the microscope they are curious and beautiful objects.

The long-leaved Sundew (*Drosera longifolia*) is growing in the more shallow parts of the pond. This species more than our others, has the power of adapting itself to its surroundings. Some of the stems are more than a foot in length, with a cluster of purplish leaves raised above the water and covered with reddish bristly glands that exude a transparent, glutinous fluid which glistens in the sunshine like dew-drops. Many unhappy insects have been lured by the fascinating glitter and become hopelessly entangled among the bristles, and the leaves have rolled entirely around some of the victims. And for what purpose? It surely cannot be for lack of nourishment.

The Arrow-head (*Sagittaria*) grows along the margins of the pond. Some of the forms are very firm, with large, broad, sagittate leaves, which in other plants are simply lanceolate. The Arrow Arum (*Peltandra Virginica*) is in company with the Sagittaria as well as many other charming plants, and altogether the Pine Barrens are very far from being barren of beauty in these early summer days.

Mary Treat.

Window Gardening.

IN the summer of 1882 I attended in London the annual Flower Show of the Westminster Society for promoting gardening among the working classes.* The exhibition was held in tents located in the College garden of Westminster Abbey, and a band of music added to the attractions. A small admission fee was charged. Many of the plants were admirably grown, and would have been worthy of a prize anywhere. There was a large attendance of orderly people, many of them evidently of the poorer classes; also a large sprinkling of richer people. The most interesting event of all was the presentation of the prizes. On a platform in the open air a number of ladies and gentlemen might have been seen, among them Dean Bradley and the late Earl of Shaftesbury; the latter, as had been his custom for many years, presented the prizes. The fortunate ones came up one after the other to receive the awards from his hands; and it was a sight not soon to be forgotten. It was evidently a great pleasure for the Earl, for he had a pleasant look and a kind word for all, and especially for the children.

Hodder, in his "Life of the Earl of Shaftesbury," in speaking of the interest that the Earl took in this Flower Show,

*The late Dean Stanley was President of this Society.

says: "The flowers, humble and simple enough, breathed whispers of strange histories. Some were reared in furtive hours in crowded slums; some came from the work-house, and many from the parochial, national, infant, Sunday and ragged schools; some from the kitchens of domestic servants and the quiet homes of working people. The advantages of these flower shows in a social aspect were many. They provided a source of simple recreation, and gave a new interest in home by adding unwonted cheerfulness to the comfortless rooms of the poor. They became the means of drawing attention to some of the social wants of the working classes, such as the need of fresh air, ventilation and more space. They taught them simple habits of forethought and prudence, for if they would win the prizes they must purchase their plants long beforehand, and expend money and time on what might only be a probability of success. Their chief good was that in watching the growth and progress of the flowers under their care the children and their parents were brought into close contact with something pure and innocent and beautiful; something that should speak to the better part of their natures and tell them of Him who has made the earth beautiful and fair."

Lord Shaftesbury believed there was nothing among the secondary means of instruction for the people to surpass window gardening and flower culture.

The love of plants and flowers on the continent of Europe is perhaps more universal than in England even. Hurst, in his "Life in the Fatherland," says: "But while the universal pains bestowed by the affluent on plants of the rarest and most beautiful variety is admirable, the almost paternal care lavished by the poorest and humblest on such flowers as they can have is touching. The family that is crowded into a single story of a small house is sure to have each window, however small, occupied by flowers. They are healthy plants, too, for they seem to be always in blossom and the leaves are of the freshest verdure. In the narrowest streets and lanes, in town as well as country, there is a love of flowers and a skill in training them into thrift and beauty, confined to no class or condition, and exhibited alike by small children and very aged persons."

Many of these foreigners who come to this country bring this love of plant life with them. I have in mind a German woman in this city, whose plants are always the envy of the neighborhood. I asked her once how it was she succeeded so well when others failed under nearly the same surroundings. She said: "She did not know; only she thought she must love the plants better." I think this German woman was right in her conjecture. No one can expect to be a really successful grower of plants unless he really loves them. Who can read that charming story of "Picciola," by Saintine, without believing that a plant reciprocates the love bestowed upon it! This plant, prison grown and cared, became almost a human being in its power for good. Among the well-to-do classes in America the love of flowers is undoubtedly increasing year by year, and as a proof of this notice the large sale of flowers in the stores and on the street, and the flower-beds so carefully planted and watered by the occupants of the country house.

There is, however, need of an effort to spread a greater love of plants and flowers among the poorer classes. Largely it must be done through the children by example and education. The public and the Sunday school should do what it can in this direction. Something has already been done, notably in Boston, where many of the churches give pot plants to the children at Easter, and this custom is increasing. This seems far preferable to the old plan of giving only flowers, which so soon wither and decay. The plants also look very pretty as a decoration to the church. In one Sunday-school at least prizes have been offered for the best plants brought back the next Easter, thus encouraging the children to care for them during the year.

The Massachusetts Horticultural Society has for several years offered prizes for window gardening to children eighteen years old and under. The value of these prizes has ranged from 50 cts. to $1.50. The effort of this Society to popularize the cultivation of flowers by encouraging children in the love and care of plants deserves high praise.

I am not aware that any other society has made any similar attempt. Something more, however, should, I think, be done by our Horticultural Society when the prizes are awarded. Why not distribute the prizes on an appointed day when the officers of the Society might be present; and why not select some competent person to address the children and present the prizes to each child personally? This, I think, would have an encouraging effect and stimulate them to greater efforts in the future.

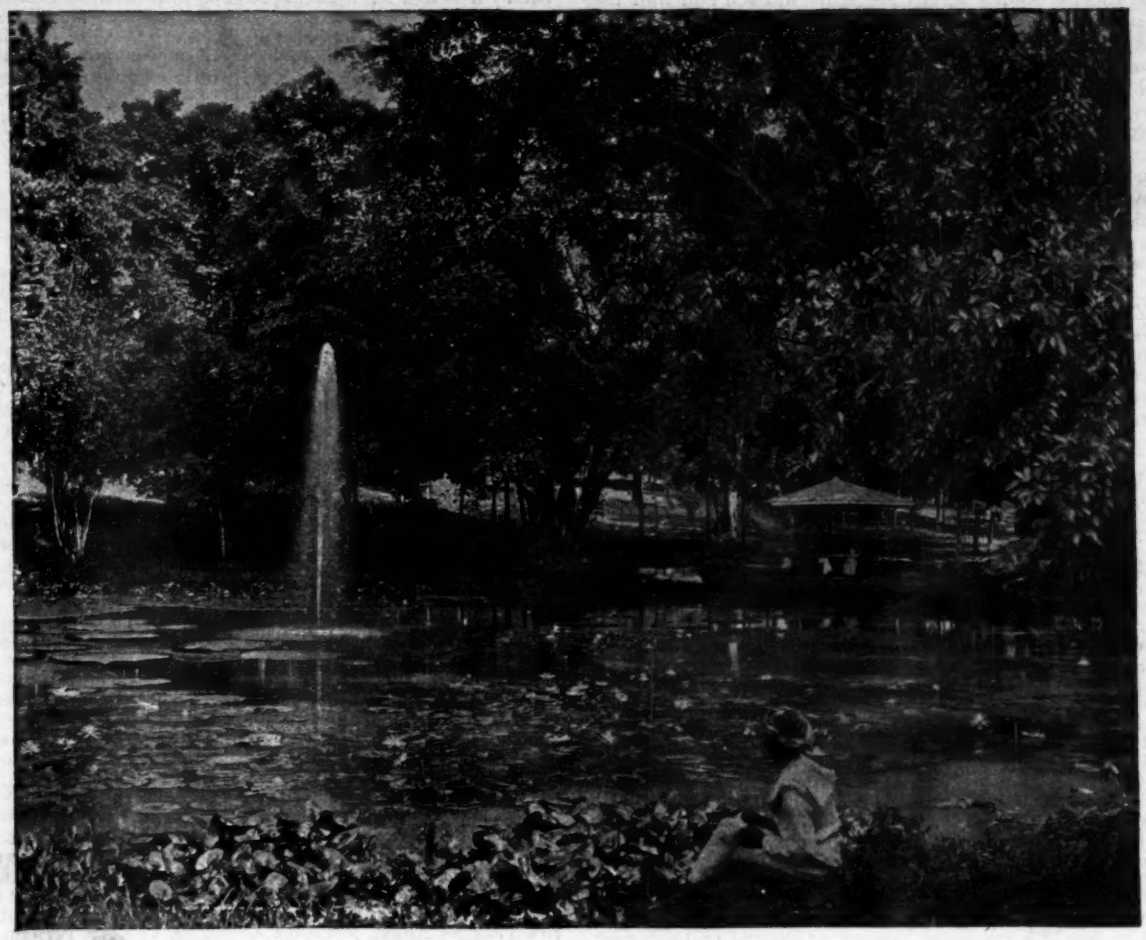
Boston. *J. D. W. French.*

Foreign Correspondence.

London Letter.

THE fortnightly exhibition of the Royal Horticultural Society held yesterday was an unusually full one, and the number of new and rare plants was larger than it has been for several meetings. This being now just the height of the Orchid season, there were many good things exhibited and not a few were submitted to the committee for certificates. Perhaps the loveliest of all the Orchids shown, certainly the rarest and most valuable, was *Cattleya Wagenerii superba*, which may be best described as a white form of *C. Mossiæ*, a large bold flower, with broad sepals and petals and a wide shallow lip. The whole flower is pure white, excepting the large blotch of citron-yellow on the labellum, which, however, does not mar the chaste beauty of the blossom. This particular plant represented a much finer form of Wagener's Cattleya than has yet been seen, the flower being larger and of better form, and fully justifies the additional name, superba. The specimen came from the unrivaled collection of Baron Schroeder and bore over a dozen flowers. Another Orchid that excited some interest and received a first-class certificate, was a new Phalænopsis, recently named *P. gloriosa* by Professor Reichenbach. It is, however, so much like *P. amabilis*, that one might easily mistake one for the other. In both the foliage is tinted with a purplish hue, and both have large white flowers, with the lip stained with vinous purple. It was exhibited by Messrs. Low, of Clapton, and their manager, Mr. Casey, tells me that it is a freer growing plant than the old *P. amabilis* and a much freer flowerer, and if this turns out to be the case everywhere, it is an acquisition, undoubtedly. Messrs. Low also showed a form of the new *Cypripedium bellatulum*, for which they received a certificate at the last meeting. The variety is called roseum, because the flowers are distinctly washed or stained with claret purple on their exteriors. Though I do not agree with the principle of certificating mere varieties that exhibit only a slight deviation from the types, I think that if this coloring in the flowers of this Cypripedium is constant, it will be a beautiful Orchid. The intimate relationship between *C. bellatulum* and *C. Godefroyæ* is as apparent as that between *Phalænopsis amabilis* and *P. gloriosa*, and many are of the opinion that the points of distinction, from a cultivator's standpoint, are weak. A fourth Orchid, certificated on this occasion, was an extremely fine form of *Odontoglossum nebulosum*, called excellens, exhibited by Messrs. Sander & Co., St. Albans. I have never before seen such a fine variety, the only approach being that named pardinum, which I remember seeing in splendid bloom in Messrs. Backhouse's nursery at York some time ago. The excellens variety has flowers fully a third larger than the type, with the broad sepals copiously marked with large spots of purple, which, not being confluent, makes the flower very pretty. The typical *O. nebulosum* is one of the finest of Mexican Orchids, and, in our moist climate, it can be grown to perfection. A remarkably fine form of *Odontoglossum Hallii* named magnificum won a certificate. The flowers are much above the usual size, and with broad sepals and petals and an extraordinarily wide labellum, while the colors, pale-yellow ground and coffee-brown markings, are richer than in ordinary *O. Hallii*. It was shown by Mr. Pollett an amateur, who owns a choice collection of Orchids near London.

A very beautiful new Japanese shrub was shown by Messrs. Veitch of Chelsea, to whom a first-class certificate was worthily awarded. This was *Styrax Obassia*, a dwarf shrub, having leaves of rounded outline as large as those of Catalpa, and bearing drooping racemes, six inches or more in length, of pure white flowers, resembling those of a Philadelphus or Mock Orange. Judging by the number of flowering branches exhibited, it must be a free flowerer, and it is certainly one of the most beautiful



Water Lilies in the Garden at Buitenzorg.—See page 241.

shrubs that has been shown for a long time. It is said to be quite hardy in the open air in the Coombe Wood nurseries near London, hence it is a most valuable acquisition. Messrs. Veitch also showed flowering twigs of the pretty *Styrax Japonica* (considered by some to be a form of *S. serrulata virgata*). The flowers of this species are white, also, and, as they hang thickly on the twigs, they remind one of our old favorite, the *Solanum jasminoides*. This Styrax is also hardy at Coombe Wood.

The hybridization of stove Anthuriums has been carried on in Belgium to a great extent, and has resulted in a multitude of hybrids, some few of which are excellent and decided improvements upon their parents. The principal species that have been used in hybridizing are *A. Andreanum* and the old *A. Scherzerianum*. One of these new hybrids was shown yesterday by M. Linden, of Brussels, and the committee gave it a first-class certificate. It is called *A. Desmetianum*, after one of the Ghent nurserymen. The plant is a good deal like *A. Andreanum* in growth, having similar heart-shaped leaves, and also a heart-shaped flower-spathe about four inches long, but, instead of being of the usual bright scarlet, it is of the deepest blood-red-crimson, a color not hitherto seen among Anthuriums. It is certainly a break from everything yet produced, yet it may be only a seminal form of *A. Andreanum*.

A new Sarracenia named *S. Williamsii* was shown by Mr. B. S. Williams and was certificated. It is a hybrid between the dwarf *S. purpurea* and one of the tall pitchered species, such as *S. flava* or *S. Drummondii*. The pitchers are about fifteen inches high, of massive size, and very handsomely shaped about the lid and mouth. They are of a cheerful apple-green, marked with a tracery of heavy crimson veins. Though we have such a large number of hybrid Sarracenias, there is certainly room for such a handsome sort as this. *W. Goldring.*

London, June 13th.

New or Little Known Plants.

Amelanchier oligocarpa.*

ALL of the American forms of the Shadbush or Juneberry have long been grouped together as varieties of one species, *Amelanchier Canadensis*. Of late years the western species, *A. alnifolia*, which was figured in a recent number of GARDEN AND FOREST, has been recognized as distinct. A figure is now given of one of the eastern varieties which seems to be equally worthy of specific rank.

Unlike our common Shadbush, which is often found in dry, open woods, this is an inhabitant of cold swamps and mountain bogs, and is found only northward, from Labrador and Rupert's Land to Newfoundland, New Brunswick, northern New England and New York, and the shores of Lake Superior. It is a low shrub, rarely more than from two to four feet high, and the smooth

* A. OLIGOCARPA, Roem. Syn. Monog., iii. 145. A low bush; leaves oblong or rarely oblong-ovate, acute at each end, sharply serrulate, glabrous (somewhat pubescent when young); flowers one to four, long-pedicellate; petals obovate; fruit dark purple, obovate to short-oblong.

and mostly oblong leaves are acute at each end and usually very finely serrulate. The long-pediceled flowers are solitary or in pairs, or rarely three or four in a raceme. The petals are broad and obovate, instead of oblong or linear, and the fruit is large, dark blue-purple, with a heavy bloom, and often nearly twice longer than broad. It is sweet and with a more decided flavor than the ordinary Juneberry, which is globose and crimson or purpl sh red.

A word may be said in regard to the specific name which is here adopted, inasmuch as some botanists, who are disposed to make the claim of priority override every other consideration in nomenclature, may assert that right for a supposed earlier name, *A. sanguinea*. But the *Pyrus sanguinea* of Pursh, the *Aronia sanguinea* of Nuttall, and the *Amelanchier sanguinea* of De Candolle and nearly all later authors, have no connection with this species. Roemer's name, based upon the *Mespilus Canadensis*, var. *oligocarpa*, of Michaux, who was the first to notice its peculiarities, must take precedence.

S. W.

Plant Notes.

Two Interesting Willows.

THE Hoary Willow (*Salix candida*), a dwarf white shrub, two to five feet high, with narrow lanceolate leaves, densely covered, as well as the young shoots, with a white web-like wool, and with beautiful rose-colored catkins of flowers, is a rare plant in New England, where it is only known in one station in Essex County, Massachusetts, discovered a few years ago by Mr. John Robinson. Further south and west it is more common. This little Willow, although an inhabitant of bogs, is easily cultivated in ordinary garden soil. Its flowers and its foliage entitle it to a place in any garden.

Another interesting plant is *Salix balsamifera*. It was first discovered more than half a century ago among the White Mountains of New Hampshire; and later in British America, from Labrador to the Saskatchewan, by Drummond, Dr. Richardson, Bourgeau and Macoun. It was long unseen in the White Mountains, but in 1879 was rediscovered, and is now known in several places, thanks to the zeal of Mr. Edwin Faxon in exploring the White Mountain Flora. It is "a much and irregularly branched shrub, four to ten feet in height, sometimes growing in clumps of thickly-set, straight, upright stems one to two inches in diameter at the base, not much branched till near the top; bark of old stems rather smooth, dull gray, branches olive, recent twigs reddish-brown, or on the sunny side shining chestnut; leaves ovate, or ovate-lanceolate, two to three inches long, one to one and one-half inches wide, broadly rounded, and usually subcordate at base, acute or acuminate, at first very thin, sub-pellucid, and of a rich reddish color; at length rigid, dark green above, paler or glaucous beneath and beautifully reticulate veined, glabrous on both sides or with a few scattered silken hairs when just expanded; margin glandular-serrulate, petioles long and slender, stipules noticeably absent throughout, or on the most vigorous shoots minute and evanescent; aments borne on slender leafy peduncles; densely flowered, very silky, obtuse cylindrical, one to one and one-half inches long, scales rosy, anthers at first reddish, becoming deep yellow; female ament less silky, becoming very lax in fruit two inches or more long; capsules rostrate from a thick base, the conspicuously long and slender pedicels six to eight times the length of the nectary; style short, bifid, stigmas spreading, thick, two lobed." This description is taken from an interesting notice of this Willow in the May number of the Bulletin of the Torrey Botanical Club. It is from the pen of Mr. M. S. Bibb, to whom Mr. Edwin Faxon writes, "With just now the fertile capsules opening and coalescing into huge, soft balls of whitest wool, almost hiding the beautiful red and maroon leaves of the growing tips, it is certainly the handsomest Willow I ever saw."

Salix balsamifera takes kindly to cultivation and is now well established in the Arnold Arboretum. *J.*

Pyrus salicifolia.—There is a remarkably fine specimen of the Willow-leaved Caucasian and Siberian Pear in the old nursery grounds of the Messrs. Parsons at Flushing. This plant, one of the hardiest and most ornamental of the family, is rarely seen in our gardens. It is a small tree, sometimes twenty or twenty-five feet high, with spreading or pendulous branches, and narrow, silky hoary leaves, which make it a pleasing and conspicuous object throughout the season, while the white flowers, often tinged with pink, which appear rather later than those of the common Pear tree, are very beautiful. There is a variety with decidedly pendulous branches which is one of the most desirable of all the small weeping trees.

New York. *D.*

Cultural Department.

The Vegetable Garden.

OLD plants of Globe Artichokes produce heads about the 1st of July, and last in good bearing condition for several weeks; the plantations set out last spring, if from divided crowns, afford a succession, but if from this year's seedlings they may not bloom till next year. In order to keep them in good bearing condition, cut off all heads as soon as they are fit to use, even if they are not wanted for use. Among Jerusalem Artichokes pull out all shoots found outside of the hills; this gives larger tubers than when the plants are allowed to grow in a thicket. The tubers will not be large enough for use before September.

Asparagus beds should have a good cleaning and the plants should be left to grow at will. If the larvæ of the Asparagus beetle has appeared in the beds, in the morning when the plants are wet with dew dust them with Paris green and plaster of Paris in the same way and proportions as for Potato beetles on Potatoes, but be careful that no other vegetables, as Lettuce, Snap Beans or Cauliflowers, that may be grown near the Asparagus, are touched by the poison.

Sow Snap Beans at least once a week till the middle or end of August. They are, according to the weather, a seven to nine weeks' crop—from sowing till gathering. The Golden Wax varieties are considered the tenderest, but no yellow-fleshed Snap Bean looks as well upon the table as green-fleshed ones. Valentine and Mohawk, both green-fleshed sorts, are of first quality. If the vines of Lima Beans fall away from the poles tie them up. Keep them clean and well hoed to induce quick growth and early fruiting. The main crop generally comes from the 7th or 15th of August and continues in bearing condition till destroyed by frost. Try to keep up a supply of Peas till the Limas come, but this is sometimes hard to do, as after the middle of July mildew overtakes and destroys the Pea crop. About the middle of July to 1st of August put in a few sowings of Peas, to come in about the middle to end of September. Use early or second early Marrow Peas, as Alpha, McLean's Advancer, Veitch's Perfection, or Bliss' Abundance, and avoid late Peas, as Champion of England, Telephone and Omega, or round Peas, as Daniel O'Rourke. The American Wonder is a very good Pea in its way, dwarf habit, excellent flavor, but it does not bear enough or last long enough in usable condition to pay for growing it. Blue Beauty—a new Pea—has done exceptionally well this year. It was sown April 11th in well enriched sandy land, and we began picking the Peas June 20th. Vines two and one-half to three feet high, very prolific; pods round, compactly filled with large green peas, averaging five in a pod; peas of excellent flavor, and we continued to pick for six days. Another new Pea called Quantity, and which is after the fashion of Abundance, has also behaved very well. Sown April 11th, we began picking from it June 25th. Vines three to three and one-half feet high, very prolific; short, well-filled pods, containing five to six peas of capital flavor. The great English Pea of last year, Royal Jubilee, sown April 11th, fit to pick June 29th; has very large, flattish pods, containing some seven peas, large and of fine flavor. Vine three to four feet high. It is a fine, showy Pea, but not good enough to crowd out old favorites.

The Cabbage tribe now requires particular attention. We have had Wakefield Cabbage since the first of June, now Early Summer and All Seasons, but at this time of year when Peas and Cauliflower abound, Cabbage is not in much demand. Set out Cabbage and Savoys for fall and winter use. If transplanting is delayed they are not likely to form solid heads for pitting in winter. Plant out Brussels Sprouts as soon as possible; they should be in condition for use from September till Christmas. Of Cauliflower set out a main crop now, and again early in August. This last setting is to be lifted and heeled into cold-frames in November for use during the winter months. These plants like rich land. They usually follow early Sweet Corn, early Potatoes, Beans and Peas. But it often happens that we have not ground enough ready for them in July, and if we leave the plants in the seed beds they will get long-stemmed and overgrown, and when set out suffer

a good deal and take a long time to recover themselves. This can be avoided by lifting and potting the young plants at once. Use four or five inch pots, and plunge them to their brims and close together in an open plot out-of-doors. And if there is a probability of the plants being late, pot them off in this way, and it will help them greatly. When potted plants are set out they grow straight ahead without ever wilting. The earliest Cauliflower and Cabbage plants should be pot-raised; they should be almost half grown in pots before the land out-of-doors is fit to plant. Sow some Dwarf Green Curled Kale now for plants to set out in August. Any empty spaces can be filled with Kale. There is no need of its attaining mature size before winter; if even half grown it is very good. Before frosty weather sets in it may be lifted and heeled in close in a cold-frame for use during winter.

Sow a row or two of large-leaved (not large-rooted) Chicory for use for salads in winter. If sown much earlier it goes to seed.

The main crop of Carrots and Beets should not be sown before July. Carrots may be sown any time in July and a few the 1st of August. The short stump-rooted Carrots are better than the long ones. Carrots sown now keep tender all winter long, but Carrots raised from April and May sowings become so hard and flavorless before winter that they are only fit to feed to stock.

When to sow Beets must be regulated by the place and season. Here the proper time is late July and early August. Beets are only wanted just large enough, say two to three inches in diameter, for use, solid and tender. Large or early sown Beets are apt to be foggy inside and unfit for table use. And as it is with Beets so is it with Turnips. Winter Turnips should never be sown here before the middle of August, because they are hardier and have a longer season of growth, to the second or third week in November. Purple-top Round Globe and Strap-leaf Turnips are very good. Sow some Parsley now in a cold-frame for use in winter. That sown now will yield nice leaves from November till May or June, whereas the plants raised from spring sowings will run to flower after February.

Fig. 41.—Amelanchier oligocarpa.—See page 245.

Keep up a regular supply of Lettuces by frequent sowings and plantings. There is no Lettuce that will not run to seed very quickly at this time of year. Grow in rich soil and water abundantly in dry weather. But as this is a "quick" crop, use as a catch-crop between rows of other vegetables rather than as a main crop of themselves. In the same way make a small sowing of Spinach and Radishes every week. It is useless at this time of year to make large sowings or plantings of such short-lived crops as are Spinach, Lettuces or Radishes.

Keep up a succession of Sweet Corn. Moore's Concord gives excellent satisfaction, and a little may yet be planted every week.

Cut back Melon vines that wander beyond their proper place, and if they grow so thickly in the hills as to threaten to smother one another, do not hesitate to thin them out severely. Sow some Cucumbers in a cold-frame. Of course, if sown out-of-doors now, they will have time enough yet to mature their fruit before cold weather sets in, but about the end of August aphides usually attack and destroy the vines. In the open ground it is difficult to overcome this pest, but in frames they can be destroyed by a free use of fresh tobacco stems or powder, keeping the frames shut up at the same time. Cucumbers for pickles are best grown in the open ground. For pickles, growers hereabout are very partial to Nichol's Medium Green.

Glen Cove, N. Y. *Wm. Falconer.*

How to Grow Quinces.

MR. CHAS. L. JONES, of Newark, N. J., has had unvarying success with this fruit and his trees have now been in bearing thirteen years. For several years he has gathered from each tree from 400 to 450 Quinces, and last year the average was 475 to a tree. Mr. Jones asserts that any one can grow Quinces in a city back yard and he gives a full explanation of his method of culture in a recent number of the *Rural New Yorker*. The first injunction is not to stir the ground deeply near the tree. The Quince throws out many fine feeding roots near the surface, and these should be encouraged, fed and protected. Hence the ground about the tree, to a distance as far as its branches extend, is undisturbed, except to keep down the weeds, which are cut close to the surface with a push-hoe. Late in autumn a dressing of barnyard manure is given, and in early summer a mulch of salt hay or other coarse material is added. This keeps the fine roots moist and cool and furnishes them with food.

The next essential is proper pruning. This does not mean an occasional thinning out of the branches as they become crowded. Indeed, as the tree is often deficient in foliage, no thinning out is practiced, but every spring the new growth all over the tree is pruned back or "headed in," so as to leave but four or five buds. This means that from two to four feet of wood is cut from every thrifty shoot. As a result of this treatment, the entire outer surface of the tree is literally covered with fruit of good size and quality.

It is a slow and tedious operation to pick off the young seed pods from Rhododendrons and Azaleas, but it pays to do it. If the pods are allowed to mature the new shoots which spring from lateral buds just below the terminal inflorescence often make a feeble and unsatisfactory growth, and fail to set flower buds, the strength of the plant going to the perfection of the seeds. The operation, if performed as soon as the plants are out of flower and before the stem becomes hard, is quickly done by pinching out the whole flower cluster just above the new shoots, although some care is necessary not to remove these also. Of course, if the new growths are broken or mutilated, there will be no bloom on them the following year.

D.

Orchid Notes.

Orchids in Bloom at North Easton, Massachusetts.

THE collection of F. L. Ames, Esq., is worthy of note at this season, containing as it does handsome specimens, many of them unique. On entering the Orchid houses one passes through a handsome reception room, recently erected for the accommodation of visitors, into a large span-roofed structure 100 feet long containing chiefly Cypripediums and Cattleyas. A few days ago the former were remarkably gay. Worthy of note among them was a handsome plant of the rare *C. Schroderæ* with six stout spikes bearing ten large, well formed flowers, a sight not easily forgotten. Among other well grown and healthy plants were examples of *C. caudatum Wallisii*,

sometimes called the white *C. caudatum*, with twelve strong growths and four fine flowers, the tails measuring fully twenty-one inches, of *C. Veitchii* with seven bold flowers, and an exceptionally fine variety, *C. præstans*, with enormous flowers and broad foliage of stout leathery texture; of *C. œnanthum*, a grand specimen, promising a fine display of bloom; of *C. Arthurianum*, with eleven strong growths, together with five plants of *C. Arnesianum, C. albopurpureum, C. Fairieanum, C. tonsum, C. Druryi, C. Sedeni candidulum, C. Petri, C. selligerum majus, C. Morganiæ*, and numerous other rare species. The Cattleyas were showing a marked improvement, the foliage having a dark green appearance, and quantities of newly made roots were spreading over the pots and baskets in all directions. Mr. Robinson, the gardener, attributes this to the abundant supply of air he gives the plants, the atmosphere in the house being always fresh and invigorating, a point he considers essential if strong growths and well formed flowers are to be expected. Several specimens in grand condition were noted, amongst them a plant in full bloom and with 100 bulbs of the rare *Cattleya Wagnerii*, the showy *C. Reineckiana* with twelve flowers and in fine form, also two magnificent specimens in full bloom with upwards of 200 bulbs of *Cattleya Skinneri*. The rare *C. Trianæ Leeana, C. Trianæ Osmanii, Lælia bella, L. Perrinii alba, L. callistoglossa, L. grandis*, with large specimens of *L. purpurata, L. elegans* and *L. elegans alba*, are all in superb condition. One of the finest examples in cultivation of *Sobralia xantholeuca* was in bloom, its large yellow flowers affording a delightful contrast with its dark green foliage. With the Cattleyas were noticed a handsome plant of the scarce *Cœlogyne Dayana* with six fine spikes, a specimen of *Dendrochilum glumaceum*, and a striking variety of *Calanthe masuca*, the mauve color of its flowers being unusually dark. The Pleiones occupy a shady position of the same house, where they receive an abundant supply of water during growth. Thunias also were in fine health. The rare *T. Veitchii*, a hybrid between *T. Bensoniæ* and *T. Marshalli*, is in bloom and very attractive, certainly a splendid acquisition to this desirable genus. The Vandas and Ærides in this collection grow very rapidly, and among the former are specimens of *Vanda Sanderiana, V. cærulea, V. Lowii, V. suavis, V. tricolor*, and the recently introduced *V. Amesiana*. *Aerides Leonii expansum* (in bloom), *A. odoratum, A. Fieldingi, A. crassifolium* and others were represented by fine specimens. Many hybrid Odontoglots of the Alexandræ type were growing freely in the house set apart for this genus, also large plants of *Oncidium macranthum* with stout growths, and a fine healthy group of Masdevallias growing rapidly, including amongst others a fine plant of the rare *Masdevallia Carderi*, with examples of *M. Fraseri*, a hybrid between *M. ignea* and *M. Harryana*, strong plants of *M. Schlimii, M. Veitchii*, and several plants of the curious and interesting *M. Chimæra*.

June 20th. *A. D.*

Odontoglossum nebulosum.—This is a pretty Mexican Orchid belonging to the maculatum group, with round, compressed bulbs, and short, broadly lanceolate leaves. The scapes which spring from the young growths are erect, about 10 inches long, and bear six to eight flowers. These are about three inches across, pure white, with the whole central portion spotted with greenish brown shaded to a red brown on the outer circles. The crest is yellow and column white. There is a variety called *candidissima* in which the spots are absent. *O. pardinum*, a species spotted more thickly than the average, has been long introduced, but does not seem to be very popular for some cause. It is easy to grow, requiring the same treatment as *O. crispum*, except that it needs a longer rest and much less water during this period. *Odontoglossum Walisii purum* is quite distinct. In growth it resembles *O. roseum*, but has rounder and larger bulbs and longer leaves. The raceme is slender, drooping, and bears some twelve flowers. These are about two inches across, not unlike a good variety of *O. Sanderianum*. The pandurate lip is beautifully fringed, rose purple, bordered with white. It is a native of the mountains of Venezuela and grows well with the treatment required by the other species.

Cypripedium Parishii, a striking species with leathery, dark green leaves. The stout, hairy scape bears three to six flowers. The sepals are pale green or straw color. Petals four to six inches long, drooping, narrow, and very much twisted, vinous purple in color. The lip is green, stained with purple. This species is not so amenable to cultivation as most of the genus, doing best here in light potting material with plenty of heat and water.

Dendrobium chrysotoxum suavissimum.—This flowers much later than the type and differs from it in having a dark maroon blotch in centre of the golden yellow flower. It produces many flowered racemes from the top of the clavate, deeply furrowed bulbs, and will continue flowering from the old bulbs for many years. It makes a grand plant for decorative purposes and is very useful for cut flowers. Coming from the hot plains of Burmah, it requires considerable heat to make good bulbs. These must be thoroughly ripened by exposure to sunlight and air, taking care not to burn the leaves during the resting season. Only enough water should be given to keep the bulbs from shriveling.

Angræcum falcatum.—This is a small, compact Orchid, with narrow dark green leaves about three inches long, from the axils of which are produced many flowered spikes of pure white fragrant flowers, with a spur about three inches long also white. *A. densum* may only be a variety of this. The leaves are shorter, broader and more erect. The flowers are white, as in *A. falcatum*, but with much shorter spurs. These two kinds are native of Japan and are generally supposed to require a cool house, but they are doing well here in the East India house. *F. Goldring.*

Notes from the Arnold Arboretum.

BY far the most beautiful of the American Andromedas is *A. speciosa*. It is a native of the coast country from North Carolina to Florida, where it is found along the borders of the Pine-barren ponds, and, in spite of its southern origin, is perfectly hardy and at home here. It is a low shrub, never more than three or four feet high, with bright green foliage, which, in one variety (var. *pulverulenta*), is chalky-white, with a dense glaucous bloom. The flowers are pure white, a third of an inch deep by as much wide when expanded, and appear in large racemed fascicles, on naked branches of the preceding year. This charming plant has been in cultivation since the beginning of the century, and once was a great favorite in English gardens. In this country it is rarely met with in cultivation, in spite of its many attractions. It is now blooming copiously.

Not less attractive in its way is *Philadelphus microphyllus*, the smallest of the family, and a native of the mountains of southern Colorado and New Mexico, whence it was introduced into cultivation by the Arboretum a few years ago. It is a twiggy shrub, with slender stems two or three feet tall, with broadly ovate, hairy leaves, half an inch long, dark green and shining above, pale below, and small white, deliciously fragrant flowers, which no one who has ever climbed over the cliffs above the Grand Cañon of the Arkansas in the early days of July, will ever forget. *Philadelphus microphyllus* is perfectly hardy here, and an excellent little shrub for the rock-garden. The earliest Ceanothus to flower here (where none of the handsome California species are hardy), and ten or twelve days earlier than the common New Jersey Tea (*C. Americanus*), is *C. ovalis*. It is a common western species, only just reaching New England on the eastern shores of Lake Champlain, and probably very rarely cultivated, in spite of the fact that it is a useful low shrub, two or three feet high, of compact habit, good foliage, and handsome, white flowers, which come later than those of most shrubs—a valuable quality.

It is the habit of late and continuous blooming through the summer which gives value to the Allsaints Cherry, a European plant of very uncertain origin. It is a handsome dwarf tree, with long, pendulous branches. In nurseries it is generally grafted standard high on the common Cherry, when the branches soon sweep the ground. It produces through the season large, white, solitary flowers, on long, drooping stems, ripe fruit and flowers appearing on the tree at the same time. The Allsaints Cherry makes a very pretty specimen for a small lawn or garden. It is very rarely seen in this country.

Acanthopanax spinosum (*Aralia pentaphylla*) is now in flower. It is a very hardy Japanese shrub, which attains a height here of eight or ten feet, with wide spreading, arching, pale gray branches, armed with stout, solitary prickles, and covered with bright green, shining, five-parted leaves, five or six inches across, and borne on long clustered petioles. The small green flowers, in axillary, long-stemmed umbels, are not showy, and the value of this plant lies in its graceful habit and handsome and abundant foliage. It is an excellent subject to plant on a rocky bank.

Rosa repens is probably a form of the common and widely distributed European Field Rose (*R. arvensis*), although abundantly distinct for garden purposes. It has trailing, prostrate branches, eight or ten feet long, handsome dark

green foliage, and small, pure white, single flowers, solitary or two or three together. It continues to expand its flowers during several weeks and is one of the most attractive of the foreign Roses in the collection. It is well suited to plant on banks or among other shrubs, where it can send its long stems freely over them, or it is an exceedingly attractive plant when trained to a tall stake or to a pillar.

Many of the American Greenbriers (*Smilax*) are handsome climbing plants. They are never cultivated, however, although some of the strong growing species can be made to serve a good purpose in preventing access across the boundaries of parks or pleasure grounds. Neither man nor beast will try to break through a well-grown mass of the tough, horribly armed stems of the common Greenbrier, or Bullbrier (*Smilax rotundifolia*), one of the handsomest plants in leaf found in the Atlantic forests.

Another species peculiar to the south, *S. Pseudo-China*, is blooming here now, and although its stems are unarmed, or nearly so, they are so tough and become so interlaced, that passage through them is almost impossible. It soon spreads from the tuberous root-stocks, sending up stems ten or twelve feet long, covered with large, dark green, ovate-oblong, sharply pointed leaves, the small clusters of greenish flowers and handsome black fruit on slender stems three or four times longer than the petioles. There are still several species of these interesting plants to introduce into cultivation and much to be learned of their horticultural capabilities.

Several of the Viburnums and Dogwoods of the Northern States are now in flower. Among them are shrubs which are unsurpassed in beauty of foliage, or of flowers, or of fruit. They can all be easily cultivated and all thrive in any variety of soil and in all exposures. Where great masses of low foliage is needed in public parks, or where shrubberies are liable to suffer from neglect, as in city squares, or on railroad embankments, or where the adornment of country roadsides is undertaken, these and other native shrubs should be selected for the purpose, rather than exotic garden plants, which always require considerable attention to keep them in good order, and which, often fastidious about soil, are liable to be attacked by insect and fungoid enemies. Our common native shrubs, however, are very rarely cultivated. A few years ago they were completely unknown in nurseries and entirely neglected by planters. Some attention has been drawn to them lately, but they are still rare in nurseries, and it is impossible to obtain them in large quantities. Such plants are easily and quickly raised, and a demand for them will soon create a supply. Attention has already been directed, in an earlier issue of these notes, to the beauty of *Viburnum Lentago*. Among the species in bloom a few days later are *Viburnum dentatum*, the Arrow-wood, a compact shrub, with erect branches eight or ten feet high, ample, sharply toothed and strongly veined leaves, and broad, peduncled cymes of white flowers, which in the early autumn are followed by bright blue, handsome fruit. *Viburnum cassinoides* grows six to ten feet high, in the northern swamps, which are its home. It has handsome, leathery, opaque, or dull, ovate, generally entire leaves, and broad, flat cymes of yellow-white flowers. This is one of the handsomest shrubs in the Northern States. It is easily cultivated, and soon grows into a round-topped, spreading specimen, flowering with the greatest profusion. *Viburnum acerifolium* is a smaller plant than either of those already mentioned, rarely exceeding a height of three or four feet on the rocky wooded hillsides where it abounds in the northern States. It is a plant of compact habit, producing freely small, long-stemmed clusters of white flowers, but its greatest beauty is in the rich, deep claret color which its handsome, three-lobed leaves assume late in autumn.

Among the native Dogwoods now in flower the handsomest, perhaps, are *C. alternifolia*, a shrub-like tree with wide spreading branches and a flat top, the alternate leaves crowded toward the ends of the branchlets, and open, wide cymes of pale yellow or white flowers, followed by deep blue fruit, with reddish stalks; and *C. circinata*, the round-leaved Cornel, a compact shrub six to ten feet high, with green, warty-dotted branches, large, round-oval, pale green leaves, four or five inches across, woolly on the lower side, flat cymes of rather large flowers, and light blue fruit. This is certainly one of the most attractive of all the Cornels.

Cornus paniculata, the Panicled Cornel, a tall, spreading shrub, often ten or twelve feet high, with smooth, gray branches, taper pointed, ovate-lanceolate leaves, and cymes or panicles of pure white flowers, which are produced in the greatest profusion, and quite cover the plant at this season. The handsome fruit is white. This is a very common and widely distributed northern plant found along the borders of streams and abounding on the margins of lowland woods and thickets. No shrub is more easily cultivated, and none is better suited to grace a park-plantation in the Northern States; *Cornus stonolifera*, the Red Osier, with its bright, red-purple, annual shoots, and long, pale foliage, is a useful plant for general planting. The flowers are pale yellow, produced in small, flat cymes, and have the merit of appearing later than those of most of the Dogwoods. The fruit is whitish or lead color. It is a very common northern shrub, found in the wet borders of swamps and in low woods. The habit of this plant of spreading by prostrate or subterranean shoots, and thus quickly forming broad clumps, which sometimes reach a height of six feet, makes it a useful plant for covering rapidly the ground among trees or larger growing shrubs, while its brilliantly colored branches add interest and variety to a plantation in winter. But by far the handsomest native shrub now in flower is the common Elder (*Sambucus Canadensis*). It is such a familiar object in every northern landscape that few persons realize that the Elder possesses all the qualifications of an ornamental plant of the very first class—hardiness, vigorous and rapid growth, good habit, pleasing foliage, handsome and conspicuous fragrant flowers, opening at a time when nearly all trees and shrubs have passed the blooming period; and fruit even handsomer and more conspicuous than the flowers which precede it. Few plants are better worth cultivating in a large garden or park, and yet, with the exception of the ugly yellow-leaved variety, it is seldom cultivated; and most gardeners of the modern school would consider it a weed to be exterminated if, by chance, it should spring up along fence lines, where birds often sow it, and where, if the ground is moist, it soon forms splendid masses of shrubbery. There is a form with deeply cut leaves which will interest persons fond of novelties, or of plants of peculiar or abnormal growth.

The very latest of the Thorns to bloom here is an American species, the so-called Washington Thorn (*Cratægus cordata*), now in full flower. It is a handsome small tree, sometimes twenty-five feet high, and perfectly hardy here, although it is a southern plant, not found growing spontaneously north of Virginia and Kentucky. In the mountainous parts of these states and of those further south it is a common inhabitant of rich woods. It has brightly shining, broadly ovate or triangular, deeply cleft, serrate leaves, on long, slender petioles, rather small flowers in simple corymbs, and small, but very showy, bright scarlet fruit, which hangs until the early winter. The autumnal coloring of the foliage, which does not change until very late, is brilliant and beautiful. *Cratægus cordata* is one of the most distinct of the American Thorns, and one of the best small trees which can be planted in Northern gardens and shrubberies. It blooms only a few days later than *Cratægus tomentosa*, an Alleghanian and western species, which must not be confounded with some of the pubescent forms of *C. coccinea*, to which many recent writers upon American botany have improperly referred this Linnean species, which does not occur in the Northern and Eastern States east of western New York. *C. tomentosa* may be readily distinguished from any of the forms of *C. coccinea*, not only by the fact that it flowers many weeks later, but by the pale gray branches, almost entirely destitute of thorns, by its thicker and more pubescent leaves, without glands, gradually contracted into a stout, margined petiole, and densely pubescent on the under side, as are the calyx and stems of the inflorescence. It may be distinguished, too, from forms of *C. coccinea* by its broader and looser corymbs, and by the extremely disagreeable odor of the flowers, and by the smaller, oblong, upright fruit, which does not ripen until long after that of *C. coccinea* has fallen to the ground. *C. tomentosa* is perfectly hardy, making in cultivation a small, handsome tree, with spreading branches and rather a flat top. The orange tints which its leaves assume in late autumn are attractive.

It is hopeless to undertake to unravel the confused synonymy of the multitude of garden forms of *Philadelphus*, or even to refer them to wild types, so mixed has been the blood of the different species through years of cultivation, and so unstable are many of the characters depended on to separate the different species. It is well to record, however, that the earliest to flower in the collection, by ten or twelve days, is the Manchurian and Japanese plant known as *P. Schrenkii*, and now considered by Maximowicz as one of the varieties (var. *Satsumi*) of the very variable and widely distributed *P. coronaria*, the common Syringa of gardens. By far the handsomest of the early flowering Syringas in the collection, however, is that known in gardens as *P. speciosus*. It is a tall, erect growing plant, covered with large, pure white flowers, and evidently a hybrid or a variety of the American *P. grandiflorus*.

June 30th. *J.*

The Forest.

Notes on the Longevity of Coniferous Tree Seeds.

LOUDON says European Larch seeds will not germinate after they have been a few months out of the cones. Our experience proves that they will germinate perfectly well eighteen months, and passably well thirty months, after leaving the cones. The belief seems to be general that White Pine seeds become rancid and will not germinate after the first season. Our experience proves that they will germinate thirty months after leaving the cones.

I think further experience will prove that the seeds of Colorado Conifers, and seeds of coniferous trees in all dry climates, will preserve their vitality still longer. We had a sack of *Pinus ponderosa* seeds from which we sowed five years in succession, and, to all appearance, they germinated the fifth year as freely as the first. Seeds of *Picea pungens* and *Pseudotsuga Douglasii* have germinated with us, apparently, as well the third year as the first. I regret that we had not seeds to try the experiment longer.

Practice has changed wonderfully during the last half century in this direction, and now, instead of keeping seeds in the cones, they are taken out as soon as the cones are gathered and dried, yet some writers on forest subjects still recommend keeping the seeds in the cones till time for sowing. But how can Fir seeds be kept in the cones? The cones fall in pieces as soon as the seeds ripen. They will hold together, it is true, if collected before the seeds are ripe, but in that case the cones will become mouldy and injure the seeds. There may be a few species of Pines which will keep longer in the cones than out, such as *Pinus Banksiana, P. contorta* and *P. tuberculata*, which hold the hard, dry cones on the trees for many years; but these are kinds which are seldom, if ever, used, and of little value. The White, and many other Pines, the Spruces and Arbor-vitæs, hold the cones on the trees for a short time after the seeds have ripened, but they shed all the seeds as soon as they are ripe, in August, September and October. I do not see how the seeds can be benefited by being left in the cones after they have ripened, nor how they can be kept as safely in cones as in bags.

It is fortunate for the forestry of this country that seeds of forest trees can be kept for years in this manner, otherwise a succession of plants could not well be kept up, for forest trees do not produce seeds every year, even when the seasons are favorable. In the year 1884 I scanned the White Pine trees closely from the head of Lake Michigan to the New England coast, thence from Rhode Island north to the Canada line, thence through the Adirondack Mountains, along the Black River, and into the White Pine regions in Pennsylvania, and saw no trees producing cones. We then sent a collector up into northern Wisconsin and the Michigan peninsula, but he found that the trees were not producing seeds. It is often the case that when forest trees fail to produce seeds in one part of the country they are abundant in another locality; but in this case the only exceptions I heard of were one locality in the Lower Provinces of Canada, and the cultivated trees west of Lake Michigan. What is true of the White Pine is measurably true of all other forest trees, and now, when so much is written on the subject of forestry, it is surprising that so little is written on this branch of the subject. Even if the seasons are all favorable one can hardly expect a crop of White Pine seeds oftener than once in three years. One year is needed for the blooming of the male and female flowers and the fertilizing of the embryo cones, the next year for the growth of the cones and the perfecting of the seeds, which draws so heavily on the vitality of the trees that they require the third year to recuperate and form blossom buds to continue the blossoming the year following. Wherever I had an opportunity to examine, as in New England, on the Adirondacks, and in the Pine belt in Pennsylvania, I found the trees all well set with embryo cones, and our collector reported the same for the region south of Lake Superior, and as these embryo cones were already fertilized we were certain of a crop of seeds the next autumn. Of course new seeds are safer and better than old seeds, and will germinate quicker. We make it a rule to sow old seeds thicker than new, and either to sow them earlier or soften them by soaking before we sow them.

Robert Douglas.

Correspondence.

To the Editor of Garden and Forest:

Sir.—I have been starting a small plantation of forest trees and meet various difficulties. I would like some of your practical correspondents to let me know how seedlings are introduced into large plantations. White Ash, for instance, reaches the ground in the spring and is about the size of a knitting-needle, Box Elder, Elm, Mulberry the same, Cottonwood only a little larger. Do planters trust fifty acres of these set four feet apart to horse cultivators with ordinary drivers? I have hard work to get a man who can see them when working with a hoe. Are the prairies free from weeds? Are large plantations of nuts made in the fall of the year or of acorns?

I have tried a few acres, but find the nuts are so late to sprout that the weeds hide them, and am almost tempted to plow the whole ground early in the spring and cultivate it to get rid of weeds, and expect that the nuts not having started will be none the worse; otherwise keep the nuts in a pile till spring. I find Ash and a good many other seeds very hard to get started; hardly one planted last fall or early this spring is yet showing this second of June. Ash, Maple and Cherry seeds in the ground since last spring were up a week ago. Perhaps other readers will be interested in a reply.

Norwood, Ontario. *G. M. Grover.*

[White Ash, Box Elder or Elm seedlings the size of knitting-needles are too small and weak for forest planting. One year old first-class seedlings of Ash or Box Elder should be the size of a lead pencil or larger, while second-class seedlings of the same age sold in nurseries at about half the price of first-class seedlings, although generally considered too delicate for general planting, should be at least three times the diameter of a knitting-needle. White Elm seedlings one year old reach a height of from twelve to twenty-four inches the first season, but are more slender than Ash or Box Elder in proportion to height. It has been demonstrated by Mr. Robert Douglas, who has successfully planted and grown more than a thousand acres of forest trees in the rich prairie soil of southern Kansas, and by other tree growers, that one year old seedling trees can be planted and kept free of weeds with horse cultivators in the hands of ordinary laborers. In Mr. Douglas' plantations, except in the case of a few acres, no cultivating whatever has been done by hand. The secret of success in forest planting of this sort is to get the sod thoroughly rotted before the trees are set, to use only strong, well selected plants, and to keep the weeds under from the start. If the young trees once get smothered in a growth of tall perennial prairie weeds the case is hopeless, and there is nothing to do but to plow the whole plantation up and make a new one. It is practically impossible to raise a forest on rich arable land by planting acorns or nuts where the trees are to stand. Grasses and weeds will smother the seedlings as they appear, or will so hide them that it will be out of the question to cultivate the field without destroying the trees. Nuts can only be planted successfully, in this country of vigorous weeds, in light sod land where the growth of the grass will not overtop the young trees, or among other trees which partially shade the ground and prevent the growth of weeds. If a forest of Oaks or Walnuts is to be raised on prairie or other rich land, yearling or two-year-old transplanted seedlings should be set and thoroughly cultivated until they shade the ground and prevent the growth of weeds. In an article printed in Number 2 of Garden and Forest, Mr. Douglas gives practical directions for raising different forest trees from seed.—Ed.]

Hardy Fruit Trees.

To the Editor of GARDEN AND FOREST:

Sir.—Under this heading I have read with care the suggestive paper, by Mr. F. W. Burbidge, in the *Gardeners' Chronicle*, and the editorial notes on it in GARDEN AND FOREST. The articles are timely and well meant, but the whole facts as to the character of the fruits of the Volga, and their singular capacity for adapting themselves to exceedingly varied climates, are not given.

As to the size, beauty and quality of the Apples of the Volga from Kazan to Sarepta—a distance by the river of near one thousand miles—I will only say that they will surprise the horticultural tourist who examines and tests them as we did in the autumn of 1882. If we were confined alone to the many varieties of the Oldenburg, Aport and Skanka families they would give a list difficult to equal in England, though in quality they are far excelled in the United States.

As to their adaptation to varied climates a few examples may be profitably considered. Taking up the latest edition of Hogg's *Fruit Manual*, we find that ten varieties of the Russian Apples, several of them from the Volga, are declared to be perfectly satisfactory in tree, foliage, habits of bearing and character of fruit in England—viz., Borovitsky, Sugar Loaf Pippin, Alexander, Constantine, Peach, Malakovna, Red Transparent, Red Astrachan, Court Penduplat, White Astrachan and Muscovy. Again, at Pomona, in south California, I found five varieties of Russian Apples—some of them from the Volga—perfect in tree, foliage and fruit, standing among, so-called, American sorts that were dwarfed and scrubby in tree, and imperfect in foliage and fruit. Their thick foliage and pubescent fruit seemed to perfectly fit them to endure the great summer heat and the great changes in temperature of the day and night. In the upper valleys of California we also find the Sweet Anis of the Volga—perfect in tree and fruit—growing beside the Orange and the Fig.

Still again, so far as tried, the Russian Apples, Pears and Cherries stand the summer heat of Alabama, Florida and Texas better than any other varieties except those of China.

To all this we must add that, next to the Siberian Crabs, the Apples of the Volga endure the trying summers and winters of Minnesota, north Dakota, and even Manitoba, most perfectly.

J. L. Budd.

Recent Publications.

Agriculture in some of its Relations with Chemistry. By F. H. Storer, S.B., A.M., Professor of Agricultural Chemistry in Harvard University. 2 volumes, 8vo, pp. 529 and 509. New York: Charles Scribner's Sons.

The lectures comprised in these volumes were delivered originally to small classes of students who represented two distinct types; (1) young farmers and the sons of farmers familiar with ordinary farm practice, but desirous of acquiring some knowledge of the sciences upon which the art of agriculture rests, and (2) city-bred men, often graduates of the academic department of the University, who intended to establish themselves upon farms, or to occupy country-seats, or to become landscape gardeners. The lectures, therefore, were not prepared for advanced students in chemistry, and the most abstruse of them are easily within the comprehension of one who has a fair elementary knowledge of that science. This does not imply that the more profound problems in agricultural chemistry are ignored, for these are clearly and exactly stated, and the results of the most recent and trustworthy investigation, both in Europe and America, are set forth with ample detail. Indeed, we know of no other work in which those fundamental problems of chemical science, upon which the practice of agriculture is based, are more skillfully grouped and presented. And this fact makes it the most instructive and helpful manual that has appeared in this country since the publication of Professor Johnson's "*How Crops Grow*" and "*How Crops Feed.*" Naturally enough the subject of fertilizers with their modes of action upon various soils and crops occupies large space, but this does not exclude the careful treatment of such subjects as Tillage, its Purposes and Processes; The Movements of Water in the Soil; The Atmosphere as a Source of Plant Food, and The General Relations of the Plant to Soil and Air. This means not only that the lectures are of interest to farmers and gardeners, but to all persons who are attracted by the mysteries of vegetable life which are constantly going on about them.

There are few forehanded farmers who do not read some agricultural paper, and the teachings of the best of these journals are usually abreast of the advance in scientific discovery. But in addition to these indispensable aids we can think of no better book to keep lying within easy reach than this one of Professor Storer's. Every day the thoughtful farmer is confronted by difficult problems in actual practice, and for nearly every one of these will be found a reference in the very complete index to these volumes. The book has, to our knowledge, proved of signal service in just such cases as a manual of daily practice. It would be a great advantage to every country home if its owner would place himself in just such relations to this book. If the true requirements of plant-growth were better understood we should see fewer hungry lawns, and spindling trees, and sickly shrubberies, and famished gardens generally. Some of the students to whom these lectures were delivered were in course of training for the profession of landscape gardeners, and knowledge like that imparted here should be an essential portion of the equipment of every artist of this kind. This knowledge, however, should not be confined to landscape gardeners or to those who till their acres for profit only. Country life loses half its charm to those who take no inquisitive interest in the processes and conditions of plant-life and development. The owner of a country-place who cannot give intelligent directions on methods of enriching his land with plant food and making that food available, or on the best mechanical preparation of his soil for a given purpose, or on the kind of cultivation best adapted to special cases, may derive some pleasure from his possession, as may the owner of a yacht who has no skill to sail her. But the keenest delight in a rural home only comes from an intimate acquaintance with the soil itself and an intelligent appreciation of its possibilities of production. To such a one the lawn, the pasture, and even the kitchen garden, offer fields for experiment and study that are ever fresh, and a new interest is added to every plant that grows for ornament or use. No safer guide in the wholesome studies above alluded to can be found than this manual, so that it can be commended not only to thoughtful farmers, but to all others who find recreation of mind and body in the abounding vegetable life of the fields and in searching for the laws under which this life is ordered.

Periodical Literature.

In the May-number of *The Portfolio* is given the first installment of a long description of Charlecote Hall in Warwickshire, the courtyard of which was pictured in GARDEN AND FOREST a few weeks ago. The text is partly architectural, partly historical in character, and the illustrations are numerous and pretty. The largest among them will especially interest our readers, as it gives the reverse of the view with which they are already familiar, showing the house from the terrace-walk beyond the courtyard wall. The second installment of the article does not appear in the June number of the magazine, but will doubtless not long be delayed; and in it we hope to find a description of the park which Shakesperean legend has made so famous.

In *Good Words* for June Mr. Grant Allen writes a pleasant chapter on "The Breadstuff of the Desert." His subject is of course the Date Palm, and in a lively and popular way he gives much information with regard to its manner of growth and the multifarious uses to which it is put. As he explains, this tree does much more than furnish the Arab of the desert with his chief—almost his only—article of food. "He eats it," says Mr. Allen, "he drinks from it, he lives under it, he burns it, he buys with it whatever he needs from other regions. It is his all, his estate, his heritage, his banker." Fortunately for him it grows best where no other tree will thrive; and by one of nature's seemingly deliberate economies, it ceases to grow well where other trees begin to flourish. The article is accompanied by a number of illustrations, but no one of them reveals the full beauty of the Date Palm as it stands in the memory of all who have been fortunate enough to see it in its African home—at once majestic and lovely, noble in its simplicity of form, yet consummately graceful in the way it yields in varying degree to the varying touches of the wind. A northern tree which is sturdy enough to be called, under any conditions, stately and majestic, always keeps its sturdy air, preserving an almost unyielding trunk even in the strongest wind. But the trunk of the Palm is superbly dignified in its apparent rigidity when a light wind tosses its feathery crown, yet bends deeply to a stronger wind, gaining grace for the moment by some sacrifice of majesty. It is this constant change in air and expression, this alternation of the effect of strength with the effect of pliancy, this look as of now dominating the elements and now being dominated by them, which makes the Palm so attractive to the traveler's eye and does so much to compensate it for the fact that it finds no other tree in the wide, level landscape.

Notes.

Prices of cut flowers are so unsteady at this season, that our weekly reports of the Retail Flower Market will be discontinued until the Fall trade begins.

The place for holding the August meeting of the Society of American Florists has again been changed. The society will meet in the Cooper Union and the exhibition will be in Nilsson Hall.

The florists and gardeners of Boston and vicinity have planned for a holiday on July 24th. It will take the form of an excursion down the harbor on a steamer, with a short landing on one of the islands. The affair will be under the auspices of the Gardeners' and Florists' Club.

It appears from a recent issue of the *Revue de la Horticulture Belge* that the flowers of the Locust (*Robinia Pseudacacia*) are considered a delicacy for the table in Europe, being served in *pâtés*. The flavor is pronounced delicious. The flowers of the European Elder (*Sambucus nigra*) are sometimes used in the same way.

A convention of the Cranberry-growers of Cape Cod will be held in the town of Sandwich during the present month for the purpose of discussing the necessities of this already important and rapidly developing industry, and especially to devise methods for the more general introduction of the Cranberry crop into European markets.

It is gratifying to note the constantly increasing use of the Gloxinia as a florists' flower. It has been adopted generally by the florists of Boston as a standard variety in their summer stock. Its rich coloring and graceful form recommend it for use in floral designs for all occasions. It is very easily bruised, but if handled carefully will keep for a long time.

Good blue flowers which can be used for cutting purposes are never abundant, but more blue is now seen in the windows of Philadelphia florists than usual, because the beautiful *Delphinium formosum* is now at its best and a prime favorite. A few of these Larkspur sprays with any yellow flower, especially with Roses like Perle des Jardins, Maréchal Neil and Sunset, or a sprig of it in a cluster of *Aquilegia chrysantha*, produces a most charming effect.

Professor Asa Gray left by will the copyrights of all his books to the President and Fellows of Harvard College, for the benefit of the Gray Herbarium, on condition that proper provisions be made for their renewal and extension by new editions, continuations and supplements as might be necessary to increase and prolong the value of the bequest. His herbarium, unequaled in North American plants, and library, he presented to the college many years before his death.

In the collection of Orchids in the recent exhibition in Paris, which won for Sander, of St. Albans, the *Grand Prix d'Honneur* offered by the President of the Republic, was a noble specimen of *Cattleya guttata Leopoldi*, more than four feet high by as much across, and bearing more than a hundred flower-stems, splendid great specimens of *Lælia purpurata*, and innumerable forms of *Odontoglossum crispum*, *O. vexillarium*, *O. Harryanum*, and of *Cattleya Mossiæ* and *C. Mendeli*.

All the plants remaining on the estate of the late C. M. Hovey, at Cambridge, Mass., were sold at auction on Monday, July 9th. Many of these plants were seedlings, and rare specimens collected by Mr. Hovey during nearly half a century, and with which he never could be induced to part. The sale attracted many buyers, mainly florists, from all parts of New England, and prices realized were good, considering the condition of the stock, of which the greater part gave evidence of sad neglect.

The Promenade along the shore of East River Park, in this city, will be a useful and attractive feature of that work. It will be twenty-seven feet wide, and but a few feet above the mean water-level, so that the cooling influence of the tides, which always flow swiftly at this point, will be most grateful in summer weather. When the walk is extended along the entire shore, including the newly acquired addition to this Park, it will be large enough to accommodate great numbers of visitors from a district which will soon be densely populated.

A common European Hawkweed (*Hieracium aurantiacum*) is now pretty thoroughly naturalized in some places in the Eastern States and is likely to become a troublesome weed here. In Greene County, in this State, it has already taken almost complete possession of some fields, and as this plant spreads from stoloniferous, underground stems, it will probably spread as fast and be as difficult to eradicate as the White Weed or Daisy. It is a hairy plant, with a cluster of narrow leaves near the ground and a simple naked scape a foot or more high, bearing a head of deep orange-colored or flame-colored flowers.

In commercial horticulture all good flowers are scarce, especially white ones. This is partly due to the hot week in late June and partly to the fact that this is "between seasons" for those who grow flowers for the wholesale market. That is, the Rose plants, for example, which did service last winter and spring, are now thrown out, and younger plants and new soil are introduced, and the success or failure of the supply next winter is often determined by the treatment of the stock at this critical period. Sickly plants, badly prepared soil, a lack of watchfulness now, mean a scant crop of inferior flowers next season.

A prominent nurseryman stated recently that the reduction of freight-rates on nursery stock brought about by the efforts of the committee appointed by the American Association last year would save to customers and the trade $50,000 during the present season. The reduction applies only to stock packed in boxes and thus puts a premium on proper packing. Such stock is now carried as third-class freight, instead of first-class, as it was formerly rated. Some of the arguments used to secure this concession were that boxed stock can be roughly handled without injury; that when transported with ordinary dispatch it is in no risk of damage, and that the carrying of nursery stock brings in time more freight in the shape of fruit.

M. Beurdeley, in a report made recently to the Horticultural Society of France, invites the attention of horticulturists to the results of his experiments with male and female plants of Asparagus. He finds the former the more productive, seventy-six shoots having been produced by twelve crowns of the female plant, or an average of nearly six and one-half shoots for each crown, while twenty crowns of the male plant yielded 244 shoots, or an average of over twelve shoots from each crown. The experiments were only carried on during a single year, but this is a subject of such practical importance to gardeners, that, as the *Revue Horticole*, from which this information is derived, suggests, they should be continued on a larger scale and during a period of several years.

A correspondent of the journal published by the *Société des Agriculteurs* in Paris sends some interesting information with regard to the very large trade done in Cauliflowers from Roscoff and other places in Lower Brittany. He says that every day, for a period of about two months, seventeen or eighteen trucks, each holding about four tons of Cauliflowers, are dispatched from four or five stations, thus making a total of over 4,000 tons of Cauliflowers during the two months. About a thousand plants go to the ton, and the average price is $17.00 per ton, or something under $70,000 for the whole lot. The bulk of them are shipped at Nantes for Bordeaux and the southern markets, or at Cherbourg and Havre for England, though a great many trucks go to Paris. An enormous profit in this trade is made by the middlemen, and the correspondent not unreasonably asks whether, with a little management, a large proportion of this might not be secured by the growers themselves.

At the Cincinnati Exposition the American Forestry Congress exhibits a section of a Tulip tree with a chronological table of its history, showing that the tree began its life when Queen Elizabeth came to the throne in 1558, was a stout sapling when Saint Augustine was founded, and gave respectable shade when the Pilgrim Fathers landed in New England. When La Salle saw it on the banks of the Mississippi in 1682 it had become a tree of royal stature; when the United States began to exist as an independent nation it was four feet in diameter and when cut for the Cincinnatti Exposition it had added another foot to its diameter, being five feet in 330 years. The Forestry Congress also exhibits a chart with many instructive illustrations of the present condition of our forest interests, both state and national. The Division of Forestry of the Department of Agriculture exhibits at the same place a collection of forest seeds; sections of 100 of our most important forest trees; 200 volumes on the subject of forestry in different languages, showing that there is such a literature; thirty-six heliotype pictures illustrating the effects of deforestation and the mode of reforestation in the French Alps, and a collection of tools used in European forest planting and management.